Coaxial

Slope Equalizer

ZEQ-8-222S+

50Ω 950 to 2150 MHz



CASE STYLE: H16

The Big Deal

- Good matching
- Minimal deviation in the attenuation slope ± 0.4 dB
- Connectorized package

Product Overview

ZEQ-8-222S+ is a 50Ω coaxial slope Equalizer. This model offers excellent performance in the “L band” frequency range of 950-2150 MHz with minimal deviation in the attenuation slope.

Key Features

Feature	Advantages
Minimal deviation in the attenuation slope, ± 0.4dB	Provide low signal distortion over the passband. Can used in satellite system.
Good matching in the passband	Good 50Ω matching between input and output.
Connectorized package	This connectorized package is easy to interface with other devices and well suits for test setups.

Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit’s applicable established test performance criteria and measurement instructions.
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Connectors	Model
SMA	ZEQ-8-222S+
BRACKET (OPTION "B")	

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Input power	+20 dBm

Permanent damage may occur if any of these limits are exceeded.

Coaxial Connections

Input	(SMA Male)
Output	(SMA Female)

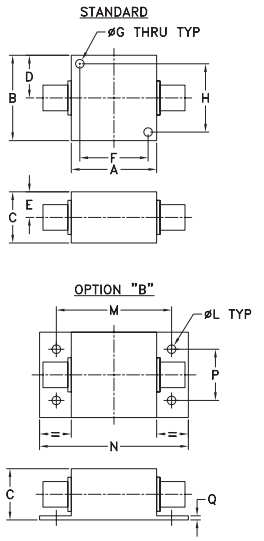
Features

- Good matching in passband
- Minimal deviation in the attenuation slope ± 0.4 dB
- Connectorized package

Applications

- Loss compensation
- Satellite L band applications

Outline Drawing

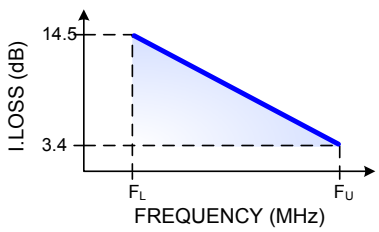


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
1.25	1.25	.75	.63	.38	1.000	.125	1.000
31.75	31.75	19.05	16.00	9.65	25.40	3.18	25.40

J	K	L	M	N	P	Q	wt
--	--	.125	1.688	2.18	.750	.06	grams
--	--	3.18	42.88	55.37	19.05	1.52	70.0

Typical Frequency Response



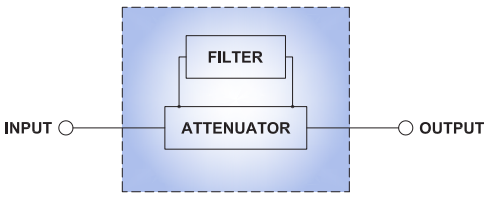
Electrical Specifications at 25°C

Parameter	Condition	Min.	Typ.	Max.	Units
Frequency Range	-	950	-	2150	MHz
Insertion Loss	950 MHz	12.5	-	14.5	dB
	1550 MHz	7.4	-	10.0	
	2150 MHz	3.4	-	6.6	
VSWR	950-2150 MHz	-	1.1	1.6	:1

Typical Performance Data at 25°C

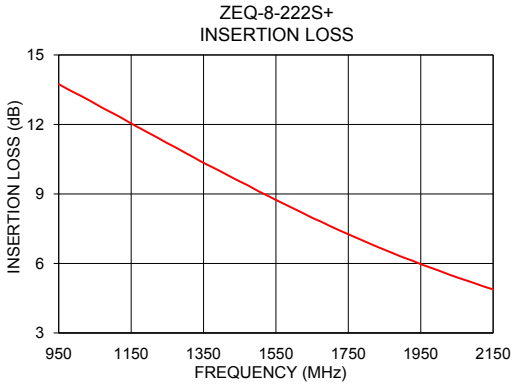
Frequency (MHz)	Insertion Loss (dB)	VSWR
950.0	13.74	1.13
1000.0	13.32	1.11
1100.0	12.48	1.09
1200.0	11.62	1.06
1250.0	11.19	1.05
1300.0	10.77	1.04
1400.0	9.95	1.03
1500.0	9.13	1.05
1550.0	8.74	1.06
1750.0	7.26	1.11
1850.0	6.59	1.13
1900.0	6.27	1.14
2000.0	5.69	1.16
2100.0	5.14	1.18
2150.0	4.88	1.19

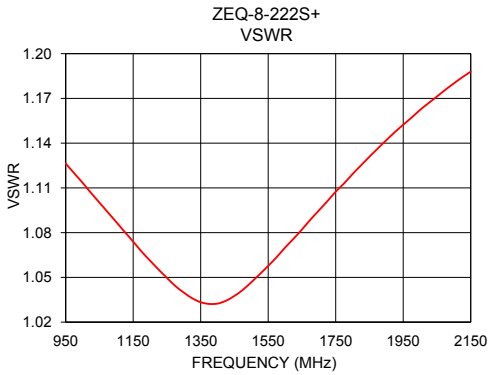
Simplified Functional Schematic



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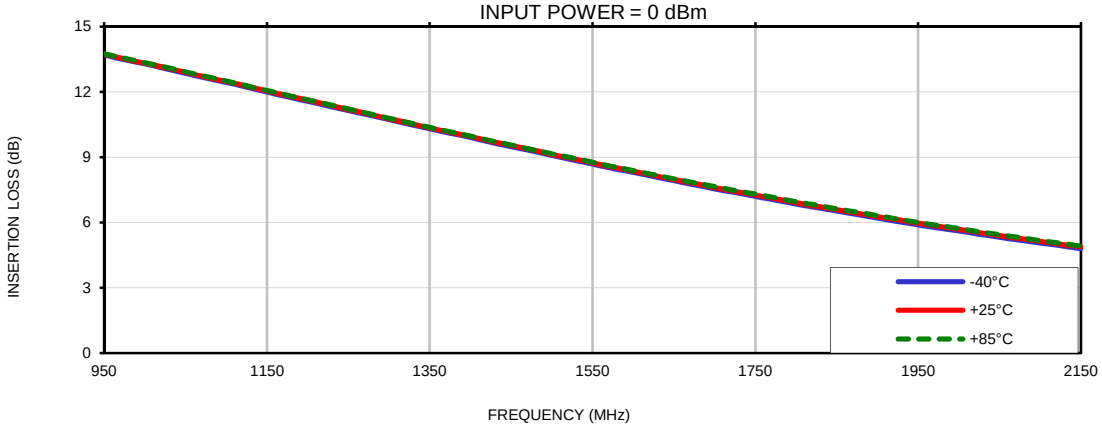
Slope Equalizer ZEQ-8-222S+

Typical Performance Data

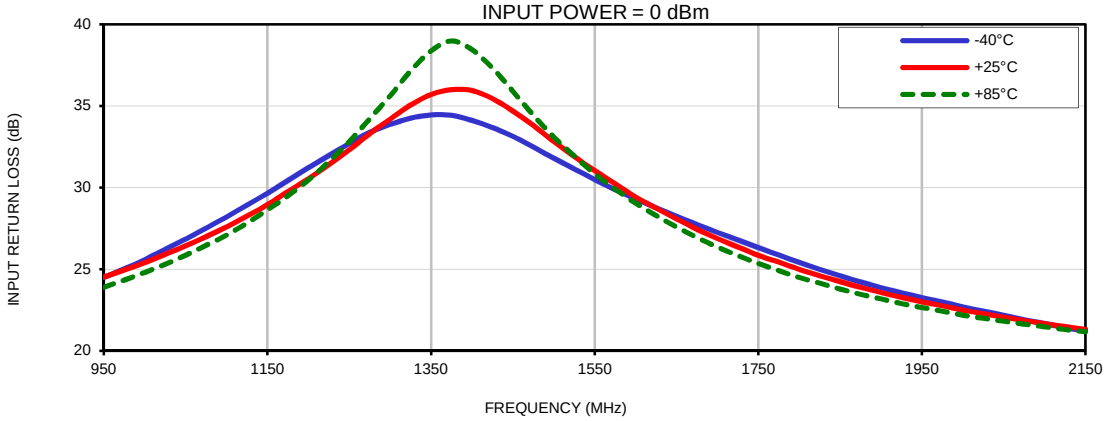
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
950	13.70	13.74	13.75	24.49	24.52	23.89	24.57	24.86	24.20
975	13.48	13.52	13.55	25.02	24.95	24.33	24.98	25.23	24.53
1000	13.29	13.32	13.34	25.58	25.40	24.80	25.48	25.65	24.92
1025	13.08	13.12	13.14	26.21	25.91	25.30	25.97	26.11	25.31
1050	12.86	12.90	12.92	26.84	26.43	25.85	26.48	26.57	25.69
1075	12.64	12.68	12.71	27.51	26.99	26.46	27.04	27.02	26.14
1100	12.44	12.48	12.50	28.20	27.59	27.08	27.67	27.53	26.62
1125	12.22	12.27	12.28	28.92	28.25	27.82	28.31	28.04	27.07
1150	12.00	12.04	12.07	29.65	28.95	28.63	29.01	28.53	27.58
1175	11.78	11.83	11.85	30.43	29.75	29.49	29.83	29.07	28.14
1200	11.58	11.62	11.64	31.21	30.54	30.46	30.57	29.56	28.63
1225	11.36	11.41	11.43	31.95	31.40	31.58	31.27	29.99	29.14
1250	11.15	11.19	11.22	32.70	32.31	32.81	32.02	30.43	29.70
1275	10.94	10.99	11.00	33.38	33.30	34.21	32.47	30.83	30.19
1300	10.73	10.77	10.79	33.86	34.19	35.62	32.64	31.06	30.61
1325	10.52	10.56	10.58	34.25	35.05	37.14	32.73	31.29	31.09
1350	10.31	10.34	10.37	34.44	35.70	38.37	32.48	31.42	31.40
1375	10.11	10.15	10.17	34.42	36.00	38.98	31.97	31.28	31.55
1400	9.91	9.95	9.97	34.11	35.94	38.45	31.55	31.19	31.68
1425	9.69	9.74	9.76	33.68	35.45	37.32	31.03	31.02	31.65
1450	9.49	9.54	9.57	33.13	34.68	35.90	30.44	30.67	31.41
1475	9.29	9.35	9.36	32.48	33.80	34.43	29.92	30.32	31.15
1500	9.09	9.13	9.16	31.80	32.82	33.09	29.44	29.97	30.83
1525	8.89	8.94	8.97	31.14	31.90	31.93	28.89	29.49	30.34
1550	8.69	8.74	8.77	30.49	31.04	30.83	28.47	29.04	29.93
1575	8.49	8.55	8.57	29.87	30.23	29.91	28.08	28.69	29.52
1600	8.31	8.36	8.39	29.30	29.42	29.04	27.63	28.24	29.01
1625	8.12	8.17	8.20	28.76	28.74	28.29	27.22	27.77	28.51
1650	7.92	7.97	8.01	28.25	28.08	27.58	26.94	27.41	28.10
1675	7.74	7.80	7.83	27.74	27.44	26.94	26.62	27.03	27.63
1700	7.55	7.61	7.65	27.25	26.88	26.35	26.30	26.63	27.19
1725	7.38	7.43	7.47	26.79	26.36	25.83	26.05	26.31	26.81
1750	7.21	7.26	7.31	26.31	25.85	25.35	25.78	26.00	26.41
1775	7.03	7.09	7.13	25.87	25.43	24.91	25.45	25.63	25.97
1800	6.86	6.92	6.96	25.41	24.99	24.49	25.22	25.36	25.68
1825	6.69	6.75	6.80	24.99	24.60	24.14	24.98	25.12	25.37
1850	6.53	6.59	6.63	24.59	24.23	23.78	24.65	24.80	25.00
1875	6.37	6.43	6.48	24.21	23.89	23.46	24.37	24.55	24.70
1900	6.21	6.27	6.32	23.87	23.57	23.18	24.16	24.35	24.48
1925	6.05	6.13	6.16	23.55	23.27	22.89	23.87	24.10	24.16
1950	5.90	5.97	6.01	23.26	23.00	22.65	23.63	23.88	23.92
1975	5.75	5.83	5.86	22.98	22.75	22.42	23.43	23.70	23.75
2000	5.62	5.69	5.73	22.69	22.49	22.18	23.18	23.50	23.50
2025	5.46	5.54	5.58	22.43	22.27	21.99	22.95	23.29	23.27
2050	5.33	5.40	5.44	22.18	22.06	21.81	22.75	23.13	23.11
2075	5.19	5.27	5.31	21.91	21.85	21.63	22.55	23.00	22.96
2100	5.06	5.14	5.17	21.67	21.66	21.47	22.31	22.82	22.76
2125	4.94	5.00	5.05	21.42	21.48	21.30	22.10	22.64	22.59
2150	4.80	4.88	4.92	21.19	21.32	21.17	21.94	22.54	22.49

Typical Performance Curves

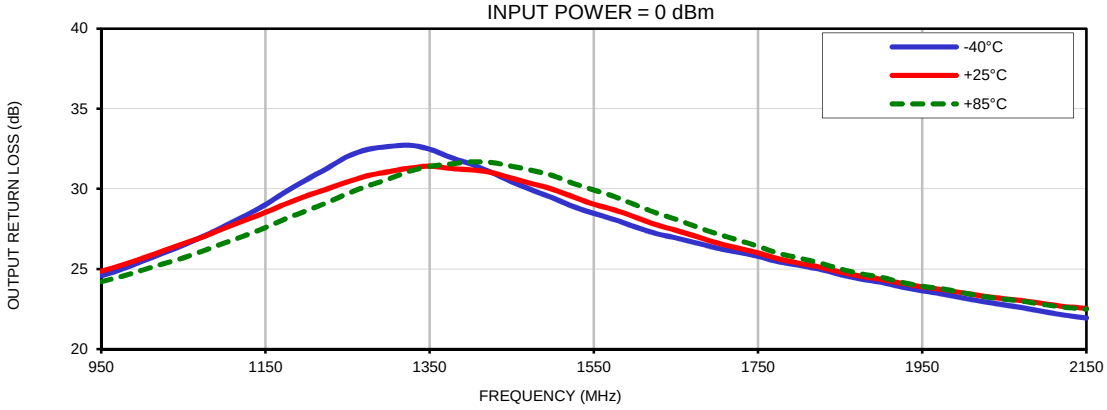
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



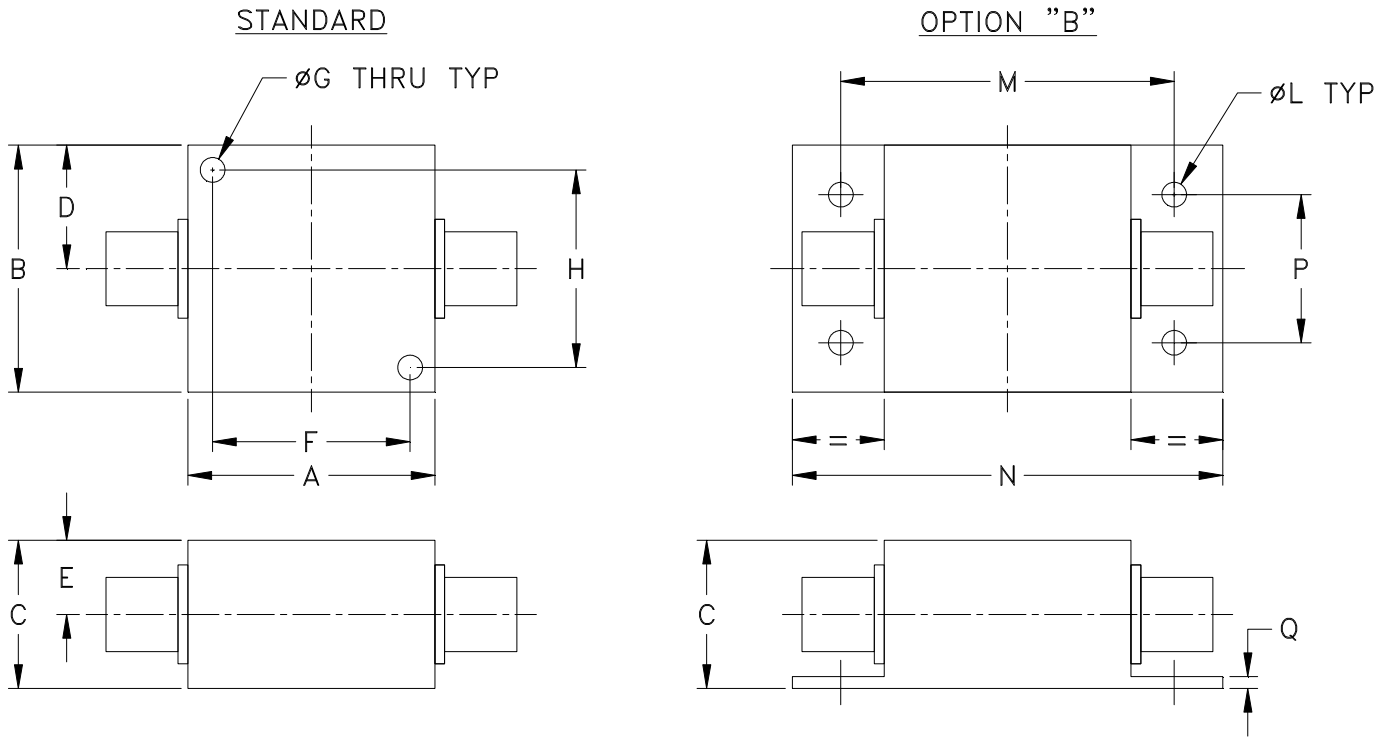
OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style H

Outline Dimensions

H16



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
H16	1.25 (31.75)	1.25 (31.75)	.75 (19.05)	.63 (16.00)	.38 (9.65)	1.000 (25.40)	.125 (3.18)	1.000 (25.40)	--	--	.125 (3.18)	1.688 (42.88)	2.18 (55.37)

CASE#	P	Q	WT.GRAMS
H16	.750 (19.05)	.06 (1.52)	70

Dimensions are in inches (mm). Tolerances: 2PL. ± .03; 3PL. ± .015

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Mounting bracket available on request. Add suffix B to part number.
4. Bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.
5. Refer to the individual model data sheet for the type of connectors available.

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Environmental Specifications ENV28

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I

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